AMENDMENTS TO THE SPECIFICATION

In the Specification

Please substitute the following amended paragraph(s) and/or section(s) (deleted matter is shown by strikethrough and added matter is shown by underlining):

Page 24, line 11-line 17

When Structures C and D in FIG. 1 are functional polymers, they are multifunctional 4 arm biodegradable functional polymers. This polymer again has a water-soluble soluble core at the center, which is a 4 arm, tetrafunctional polyethylene glycol (Structure C) or block copolymer of PEO-PPO-PEO such as ~~Tetronic~~ TETRONIC 908 (Structure D) which is extended with by small oligomeric extensions of biodegradable polymer to maintain water solubility and terminated with reactive functional end-groups such as CDI or NHS.

Page 26, line 9-line 14

When Structures H and I in FIG. 2 are functional polymers, they are multifunctional 4 arm biodegradable polymers. These polymers again have water-soluble cores at their center which are either a 4 arm, tetrafunctional polyethylene glycol (Structure H) or a block copolymer of PEO-PPO-PEO such as ~~Tetronic~~ TETRONIC 908 (Structure I), extended with small oligomeric extensions of biodegradable polymers to maintain water solubility, and terminated with functional groups such as amines and thiols.

Page 28, line 10-line 17

When Structure P in FIG. 4 is a functional polymer it may be a water-soluble linear polymer such as polyethylene glycol terminated with reactive end group such as primary amines and thiols. Such polymers are commercially available from Sigma (Milwaukee, WI) and Shearwater Polymers (Huntsville, AL). Some other preferred difunctional polymers are PPO-PEO-PPO block copolymers such as ~~Pluronic~~ PLURONIC F68 terminated with amine groups. ~~Pluronic~~ PLURONIC or ~~Tetronic~~ TETRONIC polymers are normally available with terminal hydroxyl groups. The hydroxyl groups are converted into amine groups by methods known in the art.

Page 29, line 10-line 20

When Structure U is a functional polymer, it may be a water-soluble polymer such as polyethylene glycol terminated reactive end group such as NHS or epoxide. Such polymers are commercially available from Sigma and Shearwater polymers. Some other preferred polymers are PPO-PEO-PPO block copolymers such as ~~Pluronic~~ PLURONIC F68 terminated with NHS or SNHS group. ~~Pluronic~~ PLURONIC or ~~Tetronic~~ TETRONIC polymers are normally available with terminal hydroxyl groups. The hydroxyl groups are converted into acid group by reacting with succinic anhydride. The terminated acid groups are reacted with N-hydroxysuccinimide in presence of DCC to generate NHS activated ~~Pluronic~~ PLURONIC polymer.

When Structures V-Y are functional polymers they may be multifunctional graft or branch type PEO or PEO block copolymers (~~Tetronics~~ TETRONICS) activated with terminal reactive groups such as NHS.

Table 1 (con't), Pages 30-31, Structure D, Typical Example Column

Ethoxylated ethylene diamine or polyethylene oxide-polypropylene oxide-polyethylene oxide block copolymer like ~~Tetronic~~ TETRONIC 908 chain extended with oligotrimethylene carbonate and terminated with N-hydroxysuccinimide ester

Table 1 (con't), Page 31, Structure F, Typical Example Column

Polyethylene oxide-polypropylene oxide-polyethylene oxide block copolymer surfactant like ~~Pluronic~~ PLURONIC F68 chain extended with oligolactate and terminated with amino acids such as lysine or peptide sequences that may contain two amine groups

Table 1 (con't), Page 31, Structure I, Typical Example Column

Ethoxylated ethylene diamine or polyethylene oxide-polypropylene oxide-polyethylene oxide block copolymer like ~~Tetronic~~ TETRONIC 908 chain extended with oligotrimethylene carbonate and terminated with aminoacid such as lysine.

Page 34, line 15–page 35, line 10

The functional polymers described in FIG. 2 may be prepared using a variety of synthetic methods. In a preferred embodiment, the polymer shown as Structure F may be obtained by ring opening polymerization of cyclic lactones or carbonates initiated by a dihydroxy compound such as ~~Pluronic~~ PLURONIC F 68 in the presence of a suitable catalyst such as stannous 2-ethylhexanoate. The molar equivalent ratio of caprolactone to ~~Pluronic~~ PLURONIC is kept below 10 to obtain a low molecular weight chain extension product so as to maintain water solubility. The terminal hydroxyl groups of the resultant copolymer are converted into amine or thiol by methods known in the art.

In a preferred method, the hydroxyl groups of a ~~Pluronic~~ PLURONIC-caprolactone copolymer are activated using tresyl chloride. The activated groups are then reacted with lysine to produce lysine terminated ~~Pluronic~~ PLURONIC-caprolactone copolymer. Alternatively, an amine-blocked lysine derivative is reacted with the hydroxyl groups of a ~~Pluronic~~ PLURONIC-caprolactone copolymer and then the amine groups are regenerated using a suitable deblocking reaction.

Page 42, line 23-line 27

The hydrophobicity generated by biodegradable blocks such as oligohydroxy acid blocks or the hydrophobicity of PPO blocks in ~~Pluronic~~ PLURONIC or ~~Tetronic~~ TETRONIC polymers are helpful in dissolving small organic drug molecules. Other properties which will be affected by incorporation of biodegradable or hydrophobic blocks are: water absorption, mechanical properties and thermosensitivity.

Page 44, line 21-line 25

To prepare such crosslinked composition, the bioactive compounds described above are mixed with the crosslinkable polymer prior to making the aqueous solution or during the aseptic manufacturing of the functional polymer. This mixture then is mixed with the crosslinker to produce a crosslinked material in which the biologically active substance is entrapped. Functional polymers made from inert polymers like ~~Pluronic~~ PLURONIC, ~~Tetronics~~ TETRONICS or Tween" surfactants are preferred in releasing small molecule hydrophobic drugs.

Page 50, line 17-line 24

In a preferred method, aqueous solutions of functional polymers and crosslinkers are mixed in appropriate buffers and proportions are added to a fiber cloth or net such as ~~Interceed~~ INTERCEED (Ethicon Inc., New Brunswick, NJ). The liquid mixture flows into the interstices of the cloth and becomes crosslinked to produce a composite hydrogel. Care is taken to ensure that the fibers or fiber mesh are buried completely inside the crosslinked hydrogel material. The composite structure can be washed to remove side products such as N-hydroxysuccinimide. The fibers used are preferably hydrophilic in nature to ensure complete wetting of the fibers by the aqueous gelling composition.

Page 51, line 9-line 20

Polyethylene glycol was purchased from various sources such as Shearwater Polymers, Union Carbide, Fluka and Polysciences. Multifunctional hydroxyl and amine terminated polyethylene glycol were purchased from Shearwater Polymers, Dow Chemicals and Texaco. PLURONIC ~~Pluronic®~~ and TETRONIC ~~Tetronic®~~ series polyols were purchased from BASF Corporation. DL-lactide, glycolide, caprolactone and trimethylene carbonate was obtained from commercial sources like Purac, DuPont, Polysciences, Aldrich, Fluka, Medisorb, Wako and Boehringer Ingelheim. N-hydroxysulfosuccinimide was purchased from Pierce. All other reagents, solvents were of reagent grade and were purchased from commercial sources such as Polysciences, Fluka, Aldrich and Sigma. Most of the reagents and solvents were purified and dried using standard laboratory procedures such as described in D.D. Perrin et al., Purification of Laboratory Chemicals (Pergamon Press 1980).

Page 52, line 22-line 27

30g of ~~Pluronic~~ PLURONIC F68 was dried under vacuum at110°C for 6 h and then mixed with 1.710 g of caprolactone and 30 mg of stannous 2-ethylhexanoate in a glass sealing tube. The glass tube then was sealed under nitrogen atmosphere and heated to 170°C and maintained at this temperature for 16 h. The ~~Pluronic~~ PLURONIC F68-caprolactone polymer was cooled and recovered by breaking the glass sealing tube, and then further purified by several precipitations from a toluene-hexane solvent-nonsolvent system.

Page 53, line 8-line 14

30 g of ~~Pluronic~~ PLURONIC F68-caprolactone copolymer was dissolved in 200 ml dry N,N-dimethyl formamide ("DMF") and 0.845 g of succinic anhydride was added to the reaction mixture. The mixture was heated to 100°C under a nitrogen atmosphere for 16 h. The solution then was cooled and added to 4000 ml hexane to precipitate the carboxyl terminated polymer. It was further purified by repeated (3 times) precipitation from a toluene-hexane solvent-nonsolvent system. The polymer was dried under vacuum at 40°C.

Page 53, line 17-line 24

30 g of ~~Pluronic~~ PLURONIC F68-caprolactone succinate copolymer was dissolved in 200 ml dry DMF. The solution was cooled to 4°C and 1.504 g of 1,3-dicyclohexylcarbodiimide ("DCC"I) and 1.583 g of N-hydroxysulfosuccinimide ("SNHS") were added to the reaction mixture. The mixture was stirred at 4°C for 6 h and then stirred overnight at room temperature under nitrogen atmosphere. Dicyclohexylurea was removed by filtration and the F68C2S-SNHS derivative was isolated by removing the DMF under vacuum and repeated precipitation using a toluene-hexane solvent-nonsolvent system. The product was stored under nitrogen atmosphere at -20°C.

Page 66, line 13-line 22

A ~~Fibrijet~~ FIBRIJECT™ (Micromedics, Inc.) 5 cc syringe holder and cap was used, preloaded with 5 cc of each solution and attached to a dual barrel atomizing sprayer. The sprayer has two hubs for the syringes to connect to allowing the two fluids to be advanced through two separate lumens over any preset distance. A third hub exists for the application of the atomizing gas. Air was used in this example. The distal tip of the sprayer contains a chamber where the gas expands out of an introduction tube, then flows past the two polymer solution nozzles in an annular space around each. The gas is accelerated in the annular spaces using a flow rate suitable for the complete atomization of the two fluid streams (~2L/min.). Two overlapping spray cones are thus formed allowing for well mixed, thin, uniform coatings to be applied to surfaces.

Page 66, line 25-Page 67, line 10

Male Sprague Dawley rats (250-300 grams,) were anesthetized with an intramuscular 4ml/kg "cocktail" of ~~Ketamine~~ KETAMINE (25 mg/ml), ~~Xylazine~~

XYLAZINE (1.3mg/mL) and ~~Acepromazine~~ ACEPROMAZINE (0.33 mg/mL). The abdominal area was shaved and prepped for aseptic surgery. A midline incision was made to expose the abdominal contents. The cecum was identified and location within the abdomen was noted. The cecum was pulled out of the abdomen and the surface of one side was abraded using dry sterile gauze. A technique of abrading one area by stroking the surface 12 times with the gauze was used. The cecal arterial supply was interrupted using bipolar coagulation along the entire surface area of the damaged cecum.